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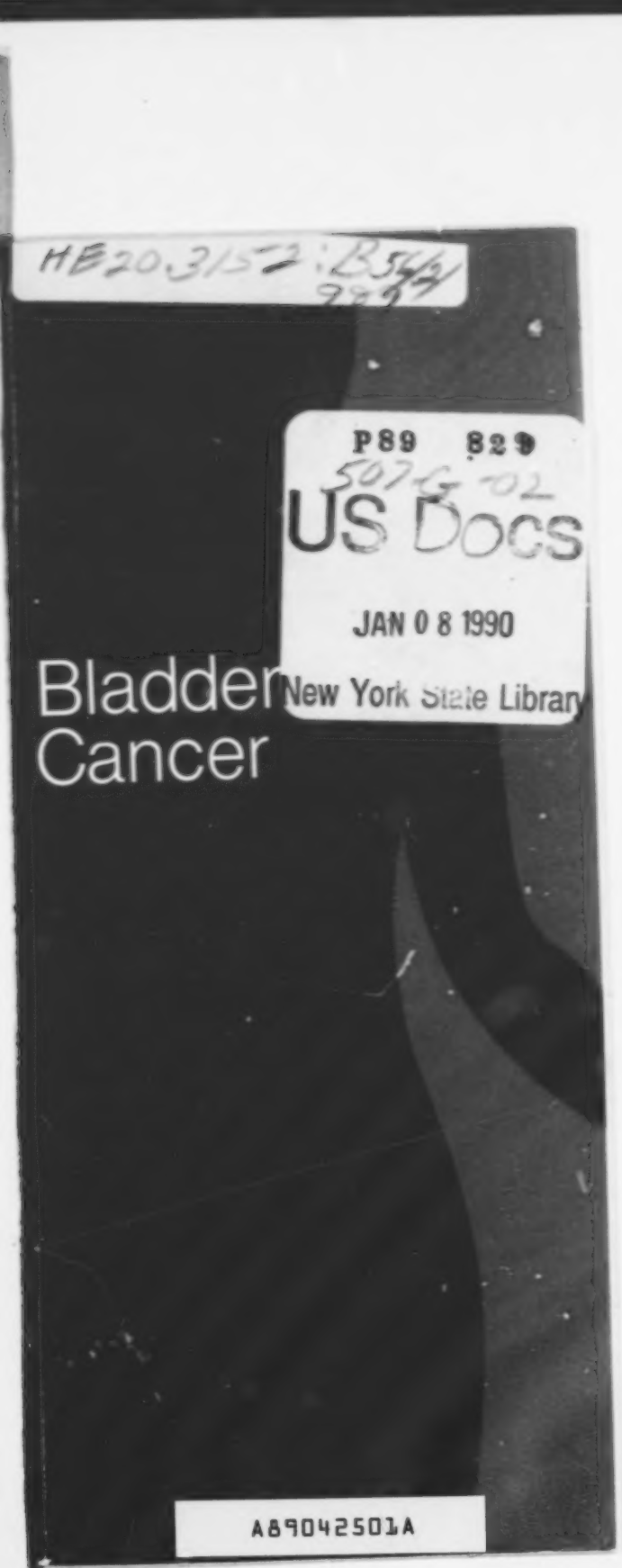
Bladder Cancer



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What You Need To Know About Bladder Cancer

The National Cancer Institute (NCI) has prepared this booklet to help patients and their families and friends better understand and deal with bladder cancer. We also hope it will encourage all readers to learn more about this disease. This booklet has information on the symptoms, diagnosis, and treatment of bladder cancer and on living with the disease. However, no booklet can answer all questions or replace talks with doctors, nurses, and other members of the health care team.

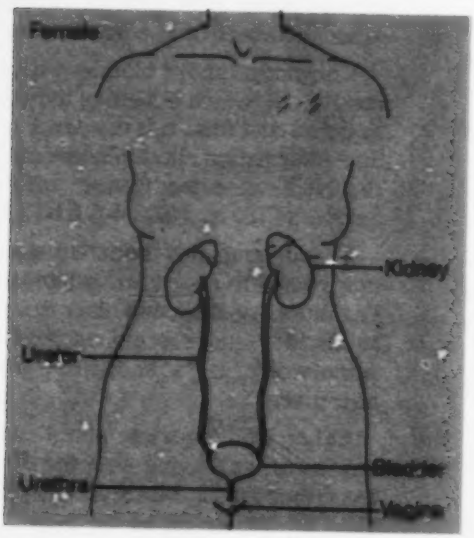
Knowledge about bladder cancer is increasing. Research is leading to better ways to detect and treat this disease. For up-to-date information about bladder cancer, call the NCI-supported Cancer Information Service (CIS) at 1-800-4-CANCER.

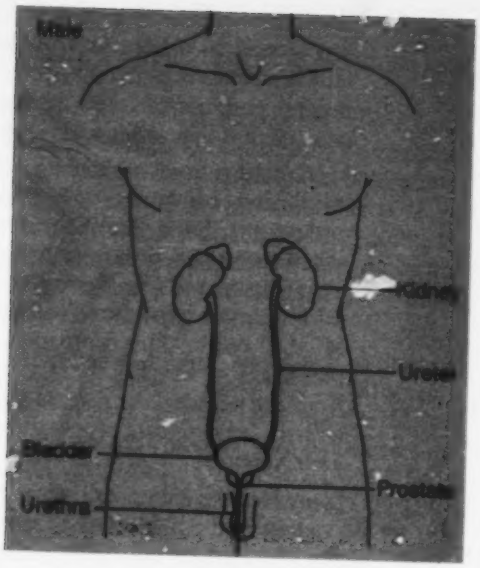
Throughout this booklet, words that may be new to readers are printed in *italics*. Definitions of these and other terms related to bladder cancer begin on page 17. For some words, a "sounds-like" spelling is also given.

Other NCI booklets about cancer, its treatment, and living with the disease are listed on page 22. More information about the CIS can be found on page 21.

The Bladder

The bladder is a hollow organ in the lower abdomen that stores *urine*. The kidneys filter waste from the blood and produce urine, which enters the bladder through two tubes called *ureters*. Urine leaves the bladder through another tube, the *urethra*. In women, the urethra is a short tube that opens just in front of the *vagina*. In men, it is longer, passing through the *prostate gland* and then through the penis.





What Is Cancer?

Cancer is a group of diseases. More than 100 different types of cancer are known, and there are different types of bladder cancer. They all have one thing in common: abnormal cells grow and destroy body tissue.

Healthy cells that make up the body's tissues grow, divide, and replace themselves in an orderly way. This process keeps the body in good repair. Sometimes, however, some cells lose the ability to control their growth. They grow too rapidly and without any order. Too much tissue is made, and *tumors* begin to form. Tumors can be *benign* or *malignant.*

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- Benign tumors are not cancer. They do not spread to other parts of the body and are seldom a threat to life. Often, benign tumors can be taken out by surgery, and they are not likely to return.
- Malignant tumors are cancer. They can invade and destroy nearby healthy tissues and organs. Cancer cells can also break away from the tumor and enter the bloodstream and *lymphatic system.* That is how cancer can spread to other parts of the body. This spread is called *metastasis.* Even if cancer is removed from the bladder, the disease sometimes returns, because cancer cells already may have spread.

Most bladder cancers develop in the inside lining of the bladder. The cancer often looks like a small mushroom attached to the bladder wall. It may also be called a *papillary tumor.* Often, more than one tumor is present.

Symptoms

The most common warning sign of bladder cancer is blood in the urine. Depending on the amount of blood present, the color of the urine can turn faintly rusty to deep red. Pain during urination can also be a sign of bladder cancer. A need to urinate often or urgently may be another warning sign. Often, bladder tumors cause no symptoms.

When symptoms do occur, they are not sure signs of cancer. They may also be caused by infections, benign tumors, bladder stones, or other problems. It is important to see a doctor to find out the cause of the symptoms. Any illness should be diagnosed and treated as early as possible.

Diagnosis

To diagnose bladder cancer, the doctor will take the patient's medical history and do a complete physical exam. Sometimes, the doctor can feel a large tumor during a rectal or vaginal exam. In addition, urine samples are checked under the microscope to see whether any cancer cells are present.

Often, the doctor wants the patient to have an x-ray called an *intravenous pyelogram* (IVP). This test lets the doctor see the kidneys, ureters, and bladder on an x-ray. An IVP normally causes little discomfort, although a few patients have nausea, dizziness, or pain from the procedure.

The doctor may also look directly into the bladder with an instrument called a *cystoscope*. In this test, a thin, lighted tube is inserted into the bladder through the urethra. If the doctor sees any abnormal areas, samples of tissue can be removed through the cystoscope. This is called a *biopsy*. A *pathologist* examines the tissue under a microscope to see whether cancer cells are present. A biopsy is needed to make a definite diagnosis of bladder cancer.

Treatment

Treatment for bladder cancer depends on a number of factors. Among these are how quickly the cancer is growing; the number, size, and location of the tumors; whether the cancer has spread to other organs; and the patient's age and general

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health. The doctor will develop a treatment plan to fit each patient's needs.

Staging

Before treatment begins, it is important for the doctor to know exactly where the cancer is located and whether it has spread from its original location. *Staging* procedures include a complete physical exam and additional blood tests and scans.

The doctor may want the patient to have a *CT* (or *CAT*) *scan.* A CT scan is a series of x-rays put together by a computer to form a three-dimensional picture. *Ultrasound* is a procedure that creates pictures of the inside of the body using high-frequency sound waves. The echoes make an image on a video screen that is much like a television. Sometimes the doctor asks for *magnetic resonance imaging* (MRI). In this scan, a cross-sectional image (like a CT scan) is produced on a screen with the use of a powerful magnet instead of x-rays.

Planning Treatment

Before starting treatment, the patient might want a second doctor to review the diagnosis and the suggested treatment plan. A short delay will not reduce the chances that treatment will be successful. There are a number of ways to get a second opinion:

- The patient's doctor can discuss the case with other doctors who treat bladder cancer. Names of doctors and up-to-date treatment information are available from the NCI's computer system called PDQ (Physician Data Query). Many of these doctors conduct *clinical trials* (treatment studies) and have a special interest in bladder cancer. (Additional information about PDQ is found on page 17.)

- Patients can get the name of another doctor from the local medical society, nearby hospitals or medical schools, or the *Directory of Medical Specialists,* a book available in many public libraries.
- The Cancer Information Service, at 1-800-4-CANCER, can answer questions about bladder cancer and its treatment and also may be able to help patients locate doctors to consult for a second opinion.

Methods of Treatment

Early (superficial) bladder cancer (in which the tumors are found on the surface of the bladder wall) generally can be treated using the cystoscope in a procedure called *transurethral resection* (TUR). The cystoscope can remove all or part of a tumor or destroy it with an electric current.

When several tumors are present in the bladder or when there is a risk that the cancer will recur, TUR may be followed by treatment with drugs. The doctor may put a solution containing the bacillus Calmette-Guerin (BCG), a form of *biological therapy,* directly into the bladder. *Chemotherapy* (anticancer drugs) may also be put directly into the bladder.

Radiation therapy (also called radiotherapy) may be needed when the cancer cannot be removed with TUR because it involves a larger area of the bladder. X-rays destroy the ability of cancer cells to grow and multiply. Internal radiation therapy, with the radioactive material placed in the bladder, may be combined with external radiation, which comes from a machine located outside the body.

For internal radiation therapy, radioactive material is inserted into the bladder through the cystoscope. This puts cancer-killing rays as close as possible to the site of the cancer while sparing most of the healthy tissues around it. The patient stays in the hospital for this treatment for between 4 and 7 days.

For external radiation treatments, the patient goes to the hospital or clinic each day. Usually, treatments are given 5 days a week for 5 to 6 weeks. This schedule helps to protect normal tissue by spreading out the total dose of radiation.

When the cancer involves much of the surface of the bladder or has grown into the bladder wall, standard treatment is to remove the entire bladder. This surgery is called a *radical cystectomy.* In this operation, the surgeon removes the bladder as well as nearby organs. In women, this operation includes removing the *uterus, fallopian tubes, ovaries,* and part of the vagina. In men, the prostate and *seminal vesicles* are removed. Research is under way to find treatments that spare the bladder.

When cancer involves the *pelvis* or has spread to other parts of the body, the doctor may suggest *chemotherapy,* the use of anticancer drugs that travel through the bloodstream to reach cancer cells in all parts of the body. Drugs used to treat cancer may be given in different ways: some are given by mouth; others are injected into a muscle or a blood vessel. Chemotherapy is usually given in cycles—a treatment period, followed by a rest period, then another treatment period, and so on.

The patient usually receives chemotherapy as an outpatient at the hospital, at the doctor's office, or at home. Sometimes the

patient may need to stay in the hospital for a short while.

Side Effects of Treatment

The methods used to treat bladder cancer are very powerful. It is hard to limit the effects of treatment so that only cancer cells are destroyed; healthy tissue may also be damaged. That's why treatment may cause unpleasant side effects. Side effects depend on the type of treatment used and on the part of the body being treated.

When the bladder is removed, the patient needs a new way to store and pass urine. Various methods are used. In one, the surgeon uses a piece of the person's *small intestine* to form a new pipeline. The ureters are attached to one end, and the other end is brought out through an opening in the wall of the abdomen. This new opening is called a *stoma.* (It is also called an ostomy or a urostomy.) A flat bag fits over the stoma to collect urine, and it is held in place with a special adhesive. A specially trained nurse or *enterostomal therapist* will show the patient how to care for the ostomy.

A newer method uses part of the small intestine to make a new storage pouch (called a continent reservoir) inside the body. The urine collects there and does not empty into a bag. Instead, the patient learns to use a tube *(catheter)* to drain the urine through a stoma. Other methods are being developed that connect a pouch made from the small intestine to a remaining part of the urethra. When this procedure is possible, a stoma and bag are not necessary because urine leaves the body through the urethra.

Radical cystectomy causes *infertility* in both men and women. This operation also can lead to sexual problems. In the past, nearly all men were *impotent* after this procedure, but improvements in surgery have made it possible to prevent this in many men. In women, the vagina may be narrower or shallower, and intercourse may be difficult.

During radiation therapy, patients may become very tired as the treatment continues. Resting as much as possible is important. Radiation treatment to the lower abdomen may cause nausea, vomiting, or diarrhea. Usually, the doctor can suggest certain foods or medications to ease these problems. Radiation therapy can also cause problems with fertility and can make sexual intercourse uncomfortable.

Chemotherapy causes side effects because it damages not only cancer cells but other rapidly growing cells as well. The side effects of chemotherapy depend on the specific drugs that are given. In addition, each patient reacts differently. Chemotherapy commonly affects blood-forming cells and cells that line the digestive tract. As a result, patients may have side effects such as lowered resistance to infection, loss of appetite, nausea and vomiting, less energy, and mouth sores. They may also lose their hair. These are short-term side effects that usually end after treatment stops. When drugs are put directly into the bladder, these side effects may be limited. However, it is common for the bladder to be irritated.

Loss of appetite can be a serious problem for patients during therapy. Patients who eat well may be better able to withstand the side effects of their treatment, so good nutrition is an important part of the treatment plan. Eating well means getting enough calories to prevent weight loss and

having enough protein to build and repair muscles, organs, skin, and hair. Many patients find that eating several small meals and snacks during the day is easier than trying to eat three large meals.

The side effects that patients have during cancer treatment vary for each person. They may even be different from one treatment to the next. Doctors try to plan treatment to keep problems to a minimum. Fortunately, most side effects are temporary. Doctors, nurses, and dietitians can explain the side effects of cancer treatment and can suggest ways to deal with them. Helpful information about cancer treatment and coping with side effects is given in the NCI publications *Radiation Therapy and You, Chemotherapy and You,* and *Eating Hints.*

Followup Care

Regular followup exams are very important after treatment for bladder cancer. The doctor will need to check the bladder with a cystoscope and remove any superficial tumors that may have recurred. The doctor also checks for cancer cells in the urine and may suggest a chest x-ray, an IVP, or other tests.

The doctor will continue to watch the patient closely for several years, because bladder tumors can come back. If the cancer does recur, it is important for the doctor to detect it right away so additional treatment can be started.

Adjusting to the Disease

The diagnosis of bladder cancer can change the lives of cancer patients and the people who care about them. These changes in daily life can be difficult to handle. It's natural for patients and their families and friends to have many different and sometimes confusing emotions.

Patients and their loved ones may feel frightened, angry, or depressed. These are normal reactions that people have when diagnosed with a serious health problem. Others in the same situation have found that they cope with their emotions better if they can talk openly about their illness and their feelings with those who care about them.

Concerns about what the future holds—as well as worries about tests, treatments, a hospital stay, and medical bills—are common. Talking with doctors, nurses, or other members of the health care team may help to calm fears and ease confusion. Patients can take an active part in decisions about their medical care by asking questions about bladder cancer and their treatment choices. Patients, family, or friends often find it helpful to write down questions to ask the doctor as they think of them. Taking notes during visits to the doctor helps them remember what was said. Patients should ask the doctor to explain anything that is not clear.

Patients have many important questions, and the doctor is the best person to answer them. Most people ask about the extent of their cancer, how it can be treated, and how successful the treatment is likely to be. These are some other questions to ask the doctor:

- What are my treatment choices?
- What are the benefits of treatment?
- What are the risks and side effects of treatment?
- Will I need an ostomy?
- Will my sex life change?
- Will I need to change my normal activities? For how long?
- Can I keep working during treatment?
- How often will I need to have checkups?

The doctor is the best person to give advice about treatment, working, or limiting daily activities. Patients may also wish to discuss concerns about the future, family relationships, and finances. They may find it helpful to speak with a nurse, social worker, counselor, or member of the clergy.

Sharing feelings with loved ones can help everyone feel more at ease, opening the way for others to show their concern and offer their support. Many patients feel that it helps to talk with others who are facing problems like theirs. Patients can meet other cancer patients through self-help and support groups such as those described in the next section.

Living with any serious disease can be difficult and challenging. The public library is a good source of books and articles on living with cancer. Cancer patients and their families can also find helpful suggestions in the NCI booklet called *Taking Time.*

Support for Bladder Cancer Patients

Learning to live with the changes brought about by having cancer is easier for patients and those who care about them when they have helpful information and support services. Often, the social worker at the hospital or clinic can suggest local and national groups that will help with emotional support, financial aid, transportation, home care, and rehabilitation.

If a patient has problems with a urostomy, the doctor, nurse, or enterostomal therapist can help. Also, adjusting to a stoma can be a lot easier with the advice and support of someone who has had the same problem. Many people have had bladder surgery, and several organizations offer assistance.

The Ostomy Rehabilitation Program of the American Cancer Society (ACS) and the United Ostomy Association (UOA) offer both emotional support and educational material. Information is available from local chapters (listed in the telephone book) or from the ACS and UOA national offices, whose addresses and telephone numbers are given on pages 21 and 22.

Information about other resources and services is available through the Cancer Information Service at 1-800-4-CANCER.

What the Future Holds

Each year, more than 47,000 Americans will find out they have bladder cancer. The outlook for patients diagnosed with early bladder cancer is very good. The chances of recovery from more advanced

bladder cancer are improving as researchers continue to look for better ways to treat this disease.

Doctors often talk about "surviving" cancer, or they may use the word "remission" rather than "cure." Even though many bladder cancer patients recover completely, doctors use these terms because bladder cancer can recur. It is normal for patients to be concerned about their future. Sometimes they use statistics they have heard to try to figure out their chance of being cured. It is important to remember, however, that statistics are averages. They are based on the experiences of large numbers of patients, and no two cancer patients are alike. Only the doctor who takes care of the patient knows enough about his or her case to discuss the patient's chance of recovery *(prognosis).*

The Promise of Cancer Research

Bladder cancer is a fairly common form of cancer in the United States. Whites get bladder cancer twice as often as blacks, and men are affected two to three times as often as women. Most bladder cancers occur after the age of 55, but the disease can also develop in younger people.

Scientists at hospitals and medical centers all across the country are studying bladder cancer. They are trying to learn what causes the disease and how to prevent it. They are also looking for better ways to diagnose and treat it.

Cause and Prevention

While doctors can seldom explain why one person gets bladder cancer and another doesn't, we do know that the disease is not

contagious; no one can "catch" bladder cancer from another person. Scientists do not know exactly what causes this disease, but research does show that some people are more likely to develop it than others. A number of factors contribute to this higher risk.

Smoking is a major risk factor. Cigarette smokers develop bladder cancer two to three times more often than do nonsmokers. Quitting smoking reduces the risk of bladder cancer, lung cancer, several other types of cancer, and a number of other diseases as well.

Workers in some occupations are at higher risk of getting bladder cancer because of exposure to carcinogens (cancer-causing substances) in the workplace. These workers include people in the rubber, chemical, and leather industries, as well as hairdressers, machinists, metal workers, printers, painters, textile workers, and truck drivers.

Treatment

The NCI is supporting many studies of new treatments for bladder cancer. When laboratory research shows that a new treatment method has promise, it is used to treat cancer patients in clinical trials. These trials are designed to answer scientific questions and to find out if a new treatment is both safe and effective. Patients who take part in clinical trials make an important contribution to medical science and may have the first chance to benefit from improved treatment methods.

A person with bladder cancer who is interested in taking part in a trial should discuss this possibility with his or her doctor. (*What Are Clinical Trials All About?* is an NCI publication about treatment studies.)

Doctors can learn about clinical trials through PDQ (Physician Data Query), a computerized system of cancer treatment information developed by the NCI. It can give doctors the latest information on studies being done around the country for most types of cancer. Doctors can use an office computer or the services of a medical library to get PDQ information. CIS offices also provide PDQ information and can tell doctors how to use PDQ on a regular basis. Patients and the public can also get PDQ information through the CIS.

Medical Terms

Anesthetic (an-es-THET-ik): A drug or gas given to produce a loss of feeling.

Benign (bee-NINE): Not cancerous.

Biological therapy: Treatment that uses natural or laboratory-made substances that can stimulate or restore the body's immune system to fight disease more effectively. Also called immunotherapy.

Biopsy (BY-op-see): The removal of a sample of tissue to see whether cancer cells are present.

Cancer: A term for more than 100 diseases that have uncontrolled, abnormal growth of cells. Cancer cells can spread through the bloodstream and lymphatic system to other parts of the body.

CAT or CT scan: An x-ray procedure that uses a computer to produce a detailed picture of a cross-section of the body.

Catheter (KATH-a-ter): A flexible tube used to withdraw fluids from the body (or inject fluids into the body).

Chemotherapy (kee-mo-THER-a-pee): Treatment with anticancer drugs.

Clinical trial: A study of a new treatment. Each study is designed to answer scientific questions and to find better ways to treat patients.

Cystectomy (sis-TEK-to-mee): Surgery to remove the bladder.

Cystoscope (SIS-to-skope): An instrument that allows the doctor to see inside the bladder and remove tissue samples or small tumors.

Enterostomal therapist (en-ter-o-STO-mal): A health professional trained in the care of urostomies and other stomas.

Fallopian tube (fa-LOW-pee-an): A tube through which the egg from the ovary reaches the uterus.

Infertility: The inability to have children.

Impotent: Unable to have an erection.

Intravenous pyelogram (in-tra-VEE-nus PIE-uh-lo-gram): An x-ray study of the urinary system. Also called IVP.

Lymph (limf): The almost colorless fluid that bathes body tissues and contains cells that help fight infection.

Lymph nodes: Small, bean-shaped organs located along the lymphatic system. Nodes filter bacteria or cancer cells that may travel through the lymphatic system. Also called lymph glands.

Lymphatic system (lim-FAT-ik): The tissues and organs (including the bone marrow, spleen, thymus, and lymph nodes) that produce and store cells that fight infection, and the channels that carry lymph.

Malignant (ma-LIG-nant): Cancerous (see Cancer).

Magnetic Resonance Imaging (mag-NET-ik REZ-o-nans IM-ajing): A diagnostic technique that creates a threedimensional picture. Also called MRI.

Metastasis (me-TAS-ta-sis): The spread of cancer from one part of the body to another. Cells in the metastatic tumor (the second tumor) are like those in the original tumor.

Oncologist (on-KOL-o-jist): A doctor who specializes in treating cancer.

Ovaries (O-var-eez): Two small, round organs on each side of the uterus that produce eggs and female sex hormones.

Papillary tumor (PAP-i-lary): A tumor shaped like a small mushroom with its stem attached to the inner lining of the bladder.

Pathologist (path-OL-o-jist): A doctor who identifies diseases by studying cells and tissues removed from the body.

Pelvis: The area between the hips.

Prognosis (prog-NO-sis): The probable outcome of a disease; the prospect of recovery.

Prostate gland (PROSS-tate): A gland in the male reproductive system just below the bladder. It surrounds part of the urethra, the canal that empties the bladder.

Radiation therapy (ray-dee-AY-shun THER-a-pee): Treatment with high-energy rays from x-rays or other sources of radiation.

Radical cystectomy (Rad-i-kal sis-TEK-to-mee): Surgery to remove the bladder as well as nearby tissues and organs.

Seminal vesicles (SEM-in-al VESS-i-kulz): Glands that help produce semen.

Small intestine: The part of the digestive tract that extends from the stomach to the large intestine.

Staging: The process of learning whether cancer has spread from its original site to another part of the body.

Stoma: An opening in the abdominal wall; also called an ostomy or urostomy.

Surgery: An operation.

Transurethral resection (TRANZ-yu-REE-thral ree-SEK-shun): Surgery performed with a special instrument inserted through the urethra. Also called TUR.

Tumor: An abnormal mass of tissue.

Ultrasound: A test that bounces sound waves off tissues and internal organs and changes the echoes that result into pictures (sonograms). Tissues of different densities reflect sound waves differently.

Ureter (YUR-e-ter): The tube that carries urine from each kidney to the bladder.

Urethra (yur-EE-thra): The tube that empties urine from the bladder.

Urine (YUR-in): Liquid waste.

Urologist (yur-OL-o-jist): A doctor who specializes in diseases of the urinary organs in females and the urinary and sex organs in males.

Uterus (YOO-ter-us): The organ that holds a baby before birth. Also called the womb.

Vagina: The muscular canal extending from the uterus to the outside of the body.

Resources

General information about cancer is widely available. Some helpful resources and booklets are listed below. Others may be available at a local library or from support groups in the community.

Cancer Information Service
1-800-4-CANCER

In Hawaii, on Oahu, call 524-1234 (call collect from neighboring islands).

The NCI-supported CIS is a nationwide telephone service that answers questions from cancer patients and their families, health care professionals, and the public. Information specialists at the CIS provide information and booklets on all aspects of cancer. They also may know about cancer-related services in local areas. During daytime hours, Spanish-speaking staff members are available to callers from the following areas: California, Florida, Georgia, Illinois, New Jersey (area code 201), New York, and Texas. By dialing the toll-free CIS number, callers will be connected to the CIS office that serves their area.

American Cancer Society
1599 Clifton Road, NE
Atlanta, GA 30329
404-320-3333

The American Cancer Society (ACS) is a national voluntary organization that offers a range of services to patients and their families and carries out programs of research and education. Additional information about these activities and about the ACS-sponsored Ostomy Rehabilitation Program can be obtained from the national headquarters or a local chapter (listed in the white pages of the telephone book under American Cancer Society).

United Ostomy Association
Suite 120
26 Executive Park
Irvine, CA 92714
714-660-8624

The United Ostomy Association (UOA) is another organization with chapters in many cities. It offers a number of booklets for people with ostomies. In addition, UOA volunteers will visit a patient to offer support and encouragement. The national office can provide the address of the nearest UOA group.

For Further Information

Cancer patients, their families and friends, and others may find the following booklets useful. They are available free of charge by calling 1-800-4-CANCER or writing:

Office of Cancer Communications
National Cancer Institute
Building 31, Room 10A24
Bethesda, MD 20892

- *Advanced Cancer: Living Each Day*
- *Answers to Your Questions About Metastatic Cancer*
- *Chemotherapy and You: A Guide to Self-Help During Treatment*
- *Eating Hints: Recipes and Tips for Better Nutrition During Cancer Treatment*
- *Radiation Therapy and You: A Guide to Self-Help During Treatment*
- *Research Report: Cancer of the Bladder*

- *Taking Time: Support for People With Cancer and the People Who Care About Them*
- *What Are Clinical Trials All About?*
- *When Cancer Recurs: Meeting the Challenge Again*

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